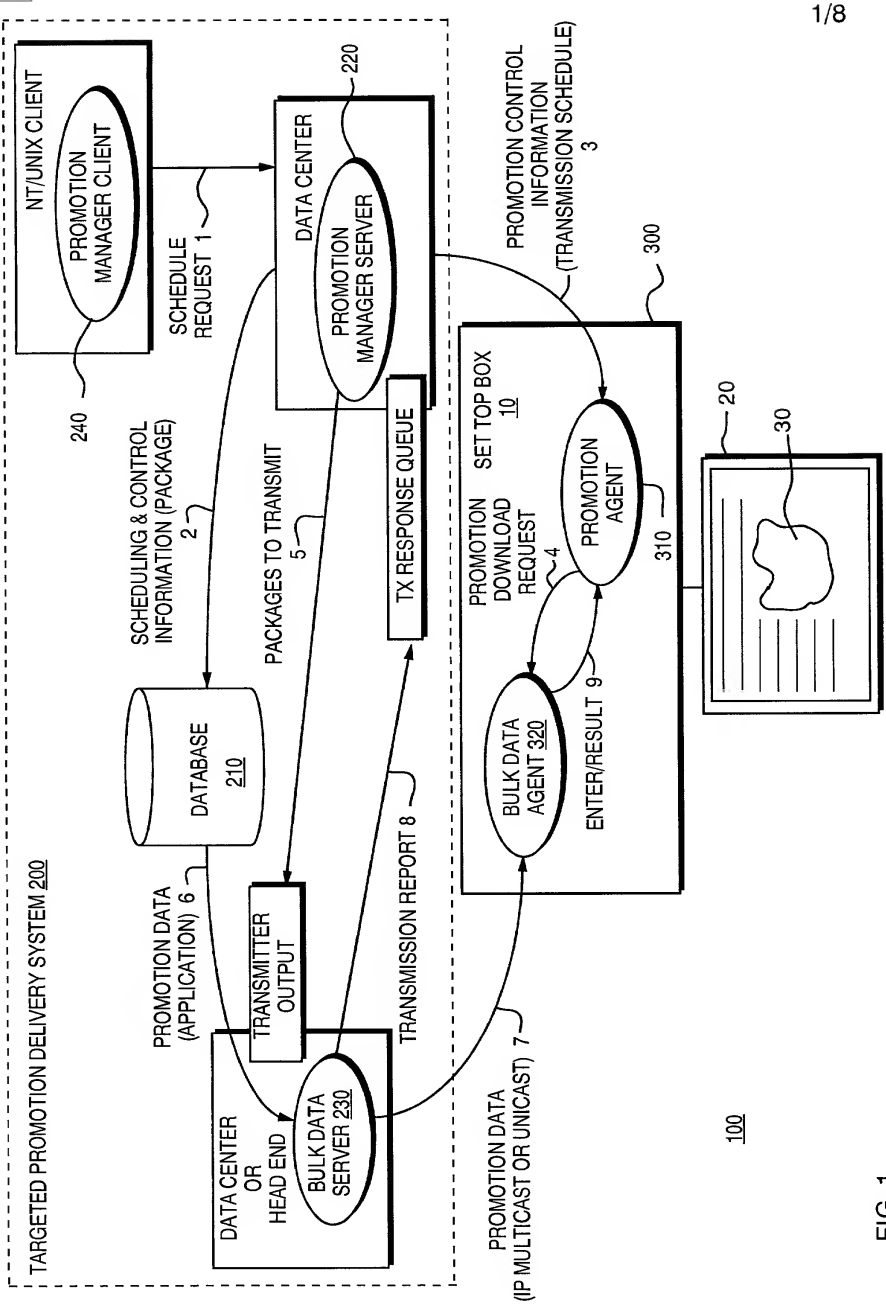
TARGETED PROMOTION DELIVERY SYSTEM 200
NT/UNIX CLIENT
PROMOTION MANAGER CLIENT
240
SCHEDULE REQUEST 1
DATA CENTER
220
PROMOTION MANAGER SERVER
PROMOTION CONTROL INFORMATION (TRANSMISSION SCHEDULE) 3
300
SCHEDULING & CONTROL INFORMATION (PACKAGE) 2
PACKAGES TO TRANSMIT 5
TX RESPONSE QUEUE
SET TOP BOX 10
PROMOTION DOWNLOAD REQUEST 4
PROMOTION AGENT
310
20
30
DATABASE 210
PROMOTION DATA (APPLICATION) 6
TRANSMITTER OUTPUT
TRANSMISSION REPORT 8
BULK DATA AGENT 320
ENTER/RESULT 9
DATA CENTER OR HEAD END
BULK DATA SERVER 230
PROMOTION DATA (IP MULTICAST OR UNICAST) 7
100

FIG. 1

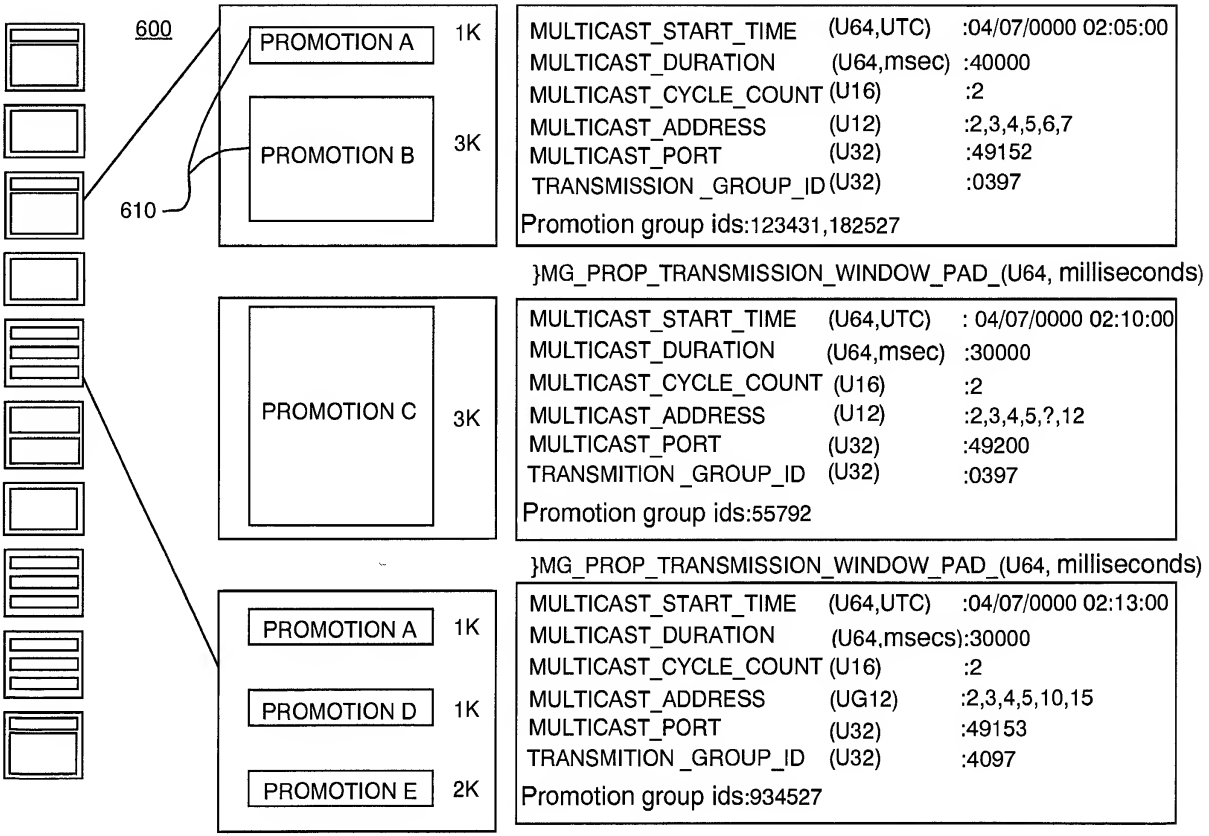
600
610
PROMOTION A
1K
PROMOTION B
3K
MULTICAST_START_TIME (U64,UTC) :04/07/0000 02:05:00
MULTICAST_DURATION (U64,msec) :40000
MULTICAST_CYCLE_COUNT (U16) :2
MULTICAST_ADDRESS (U12) :2,3,4,5,6,7
MULTICAST_PORT (U32) :49152
TRANSMISSION _GROUP_ID (U32) :0397
Promotion group ids:123431,182527
}MG_PROP_TRANSMISSION_WINDOW_PAD_(U64, milliseconds)
PROMOTION C
3K
MULTICAST_START_TIME (U64,UTC) : 04/07/0000 02:10:00
MULTICAST_DURATION (U64,msec) :30000
MULTICAST_CYCLE_COUNT (U16) :2
MULTICAST_ADDRESS (U12) :2,3,4,5,?,12
MULTICAST_PORT (U32) :49200
TRANSMITION _GROUP_ID (U32) :0397
Promotion group ids:55792
}MG_PROP_TRANSMISSION_WINDOW_PAD_(U64, milliseconds)
PROMOTION A
1K
PROMOTION D
1K
PROMOTION E
2K
MULTICAST_START_TIME (U64,UTC) :04/07/0000 02:13:00
MULTICAST_DURATION (U64,msecs):30000
MULTICAST_CYCLE_COUNT (U16) :2
MULTICAST_ADDRESS (UG12) :2,3,4,5,10,15
MULTICAST_PORT (U32) :49153
TRANSMITION _GROUP_ID (U32) :4097
Promotion group ids:934527

FIG. 2

COLUMN	DESCRIPTION
ID (PK)	Uniquely identifies the package.
PACKAGE_START_TIME	The time the first contained promotion is active. This column is updated each time a promotion is added to the package, using the START_ TIME from the earliest promotion.
PACKAGE_EXPIRE_TIME	The time the first contained promotion expires. This value is computed by adding the last promotion's START_TIME to its DURATION.
INFO_TX_TIME	Scheduled time for distributing the transmission schedule. Computed by the scheduler by subtracting from DATA_TX_TIME the INFO_TX_LEADTIME from the associated transmission group.
DATA_TX_TIME	Scheduled start time for the multicast. Computed by the scheduler by subtracting from the earliest promotion activation time the DATA_TX_LEADTIME value from the associated transmission group.
DATA_TX_DURATION	Total time (in msec) of the transmission. Computed using an algorithm that uses the total number of bytes to be sent, along with the transmission group's DATA_TX_RATE and DATA_TX_CYCLE_COUNT values as input parameters.

TO
FIG. 3B

FIG. 3A

FROM
FIG. 3A

DATA_TX_ADDRESS	IP multicast address to be used to send the package. The scheduler uses an internal API call which retrieves this value using a round-robin scheme layered over configured address information.
DATA_TX_PORT	UDP port number to be used to send the package.The scheduler uses a round-robin scheme layered over configured port information.
DATA_TX_RATE	
TRANSMISSION_GROUP_ID	Identifies the transmission group to receive the package. The scheduler determines this value by mapping promotion group identifiers into transmission group identifiers when a promotion is scheduled. All of the promotions within a single package share a command transmission group identifier. When a promotion is associated with more than one transmission group, a separate package is created in the system for each group.

TO
FIG. 3C

FIG. 3B

FROM
FIG. 3B

SCHEDULE_TX_SENT	Character encoded Boolean set to TRUE after the transmission schedule has been sent to the devices. Note: once the device has been notified of the schedule the package cannot be altered by the normal process. has been sent means that schedule needs to be regenerated and transmitted to the devices.
SCHEDULE_TX_RESULT	Result code containing the result of the schedule transmission.
DATA_TX_SENT	Character encoded Boolean set to TRUE after the multicast has been successfully accomplished.
DATA_TX_RESULT	Result code containing the result of the data transmission.
TIME_CREATED	Time the entry was added to the table.
TIME_MODIFIED	Last time the record was updated.

FIG. 3C

Multicast Remote Moniker	
Parameter	Meaning
ObjectGUID	This identifies the data that follows as a multicast remote moniker, version 1.0
ModuleID	The bulk server correlates its binaries using the module ID. The module ID is used to choose the binary to send or receive.
Start time	Time that the multicast transmission of the data begins.
Duration	Length of time that the multicast runs.
Address	IP multicast address.
Port	Port # for multicast.

FIG. 4A

HG_BULKMGR_SCHEDULE_MULTICAST	
Parameter	Meaning
HG_PROP_REQUEST_TYPE	HG_BULKMGR_ SCHEDULE_ MULTICAST
HG_PROP_REQUEST_ID	Used to correlate request with responses
HG_PROP_QUEUE_NAME	HG_ BULKSERVER_ QUEUE_ NAME
HG_PROP_RESPONSE_QUEUE	The responses are sent to this queue.
HG_PROP_SENDER_ID	The responses are sent to this machine.
HG_PROP_BULKMGR_IP_ADRESSS	Internet address for multicast.
HG_PROP_BULKMGR_PORT	Port # used to send multicast.
HG_PROP_BULKMGR_NETWORK_ID	The network to multicast over. This defaults to the value in the property collection.
HG_PROP_BULKMGR_ PACKET_FREQUENCY	# of ticks per packet transmission.
HG_PROP_BULKMGR_ START_TIME	Time to start the transmission.
HG_PROP_BULKMGR_ DURATION	Length of the transmission
HG_Module ID1	Unique identifier for first promotion
HG_Module ID2	Unique identifier for second promotion.
...	...
HG_Module IDn	Unique identifier for n'th promotion.

FIG. 4B

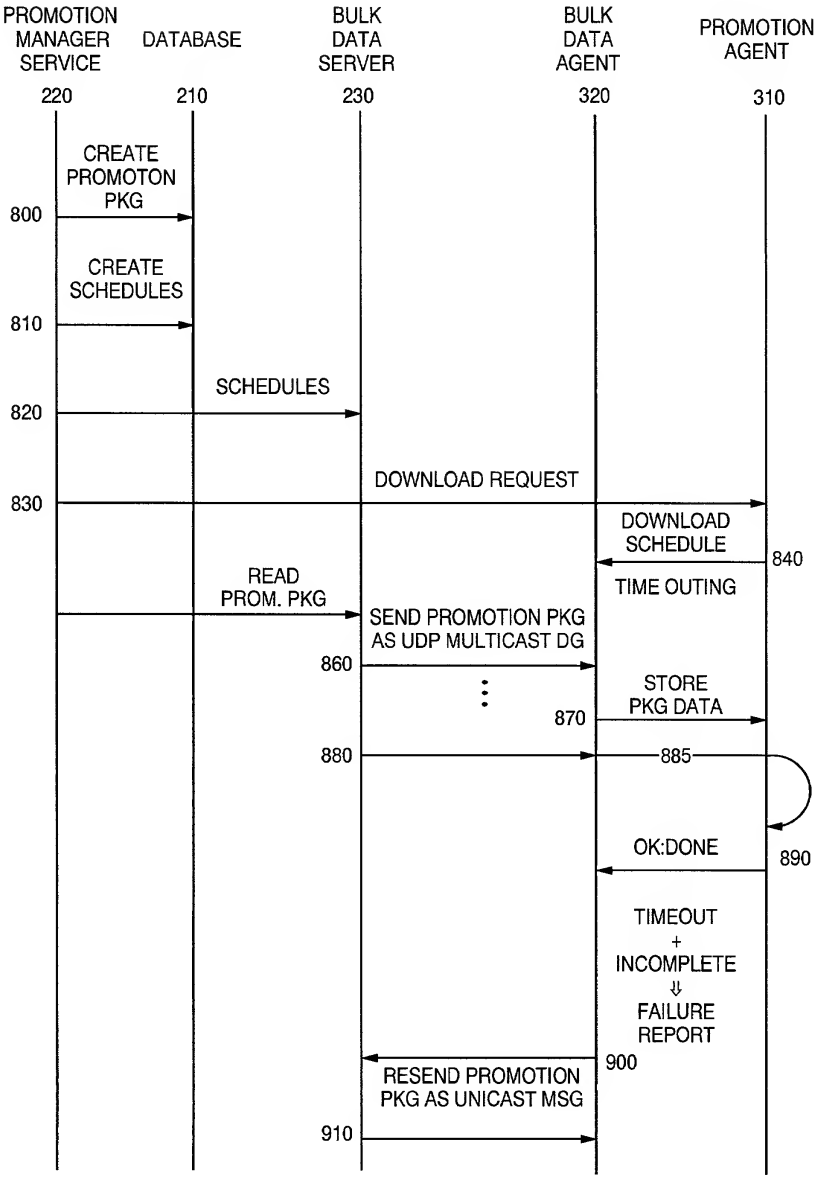
PROMOTION MANAGER SERVICE
220
DATABASE
210
BULK DATA SERVER
230
BULK DATA AGENT
320
PROMOTION AGENT
310
CREATE PROMOTON PKG
800
CREATE SCHEDULES
810
SCHEDULES
820
DOWNLOAD REQUEST
830
DOWNLOAD SCHEDULE
840
TIME OUTING
READ PROM. PKG
SEND PROMOTION PKG AS UDP MULTICAST DG
860
STORE PKG DATA
870
880
885
OK:DONE
890
TIMEOUT + INCOMPLETE ⇩ FAILURE REPORT
900
RESEND PROMOTION PKG AS UNICAST MSG
910

FIG. 5